



ACT Work Group

**Recap of November meeting in Annapolis and
additional slides**

December 11, 2007

Contents

- ▶ November 13-14 meeting
- ▶ Subsequent activity
- ▶ Recent developments

Annapolis meeting overview

- ▶ Closed, no notes
- ▶ Objective: make progress on recommendations
- ▶ In-depth discussion on all topics
 - ▶ Education/Outreach
 - ▶ CAA authorities
 - ▶ Energy efficiency improvements
- ▶ “CCS gigawatts” exercise

Recommendations

1. Early Deployment Fund
2. Technology Advancing Agreements
3. Pricing carbon
4. Using incentives
5. State PUCs
6. EPA UIC rule
7. EPA training program
8. EPA public outreach
9. EPA accounting protocol
10. CO₂ specifications
11. Pipeline study

Early Deployment Fund

Congress should immediately create:

- ▶ Quasi-governmental CCS Early Deployment Fund
- ▶ Paid for by a fossil electricity charge***
- ▶ The results:
 - ▶ Rapid deployment of 5-10 commercial-scale coal-based facilities
 - ▶ Demonstrate integrated carbon capture and sequestration technologies
 - ▶ Various conditions and locations

Early Deployment Fund Breaks Cost Barrier

Funding details:

- ▶ .4 Mill charge on fossil electricity
- ▶ \$1 billion raised annually

Cost penalty offset by:

- ▶ Making Payments for sequestered CO2
- ▶ Reverse auction by project developers
- ▶ Different auctions for sequestration type and location
- ▶ 90% of \$ to long-term CO2 contracts

Goal: demonstrate technologies, reduce costs, gain experience for global benefit

Technology Advancing Agreements

Stakeholders should consider multi-party negotiations:

- ▶ At coal-fired facilities, new or existing
- ▶ During pre-permit stage
- ▶ Avoid or minimize litigation
- ▶ Encourage non-CCS ACTs and/or
- ▶ Demonstration of partial CCS technologies
- ▶ Assure environmental benefits

Goal: accelerate ACTs during period of uncertainty

Pricing Carbon

Congress should enact legislation that establishes a market-based approach that would price emissions of greenhouse gases as quickly as possible***

Policies should include provisions that prioritize and encourage early deployment of advanced coal technologies – particularly CCS.

A Toolkit of Incentives

Use a toolkit of incentives to accelerate early commercial ACTs

- ▶ Government agencies (F, S, & L) should coordinate incentives with commercial risk management instruments, applying different incentives to address different risk factors, optimize effectiveness, and contain government cost.

Toolkit Options

- ▶ Certain incentives address more common issues
- ▶ To get plant built:
 - ▶ Loan guarantees
 - ▶ Off-take agreements
 - ▶ PUC actions (rate basing)
- ▶ For projects with sequestration
 - ▶ Tax credit per ton of CO₂ sequestered
 - ▶ Technology Advancing Agreements

State Actions for PUCs

- ▶ State legislatures should enable PUCs to consider control of emissions of carbon dioxide
 - ▶ Enable findings that costs associated with ACT projects are entitled to reasonable cost recovery
- ▶ State legislatures should adopt laws enabling PUCs to administer incentives for early commercial deployment of ACTs, including CCS
 - ▶ Accelerated cost recovery and requirements for long-term power purchase agreements

EPA's UIC Rulemaking

EPA Should Create Class 6 UIC Well

- ▶ New classification avoids “stigma”
- ▶ “Adaptive” rule to incorporate new data regularly
- ▶ Provide guidance on liability and financial assurance mechanisms

EPA Should Implement Training Program

- ▶ For Regulators and PUC Officials
- ▶ How to Permit and Monitor CCS Projects
- ▶ Work with other Federal, State and Tribal agencies
- ▶ Develop 'Best Practices' for innovation

EPA Outreach on CCS

EPA immediately develops a CCS public outreach effort

- ▶ In conjunction with other agencies
- ▶ Reasons why CCS needed
- ▶ Benefits
- ▶ Security of injected CO₂
- ▶ Need for early deployment

EPA CO2 Accounting Protocol

EPA publishes CO2 accounting protocol for CCS in geologic formations

- ▶ Allowances under cap
- ▶ Offset in a tax or alternative system
- ▶ Capture, transport, injection
- ▶ Use existing protocols or adopt them
- ▶ Multi stakeholder
- ▶ Public comment

CO2 Standards

ASTM (or similar body) should establish CO2 standards

- ▶ For long-term sequestration of CO2 and potentially other co-injected materials
- ▶ For transport
- ▶ Consider how source and end-use

CO2 Pipeline Study

DOT should immediately conduct a study examining CO2 pipeline infrastructure issues

- ▶ In conjunction with other agencies and groups
- ▶ Legal, technical, financial hurdles

Other

- ▶ Text re: property rights + liability
- ▶ Definition of an ACT

Recent developments

- ▶ EPA rulemaking on UIC
- ▶ Lieberman Warner
- ▶ Energy bill
- ▶ Washington State
- ▶ Other IGCC?

The background is a deep blue gradient. Overlaid on this are several translucent, light blue shapes that resemble flowing ribbons or smoke. These shapes are curved and layered, creating a sense of movement and depth. They sweep across the frame from the left and bottom towards the upper right.

Additional Slides

Final Report: Components

1. Slide presentation to CAAAC
2. Recommendation document
 - a. One page of context
 - b. Recommendations
3. Supporting materials: online
4. Communications packet
 - a. Website
 - b. Recommendation talking points (1-pager)
 - c. Other items

Regulatory Drivers: Status Check

- Existing Clean Air Act authorities
- Energy efficiency improvements
- Others?

Existing Clean Air Act Authorities

- ▶ **EPA should take advantage of existing opportunities under the CAA, and current regulations, to promote the near-term deployment of ACTs with the near-term potential for carbon capture and that offer significant reductions in conventional pollutant emissions and mercury. These opportunities include:**
 - ▶ **Considering and evaluating such ACTs in the BACT emissions limit determination for new coal-based EGUs; and**
 - ▶ **Collateral environmental benefits of reduced CO₂ should be factored in to selecting a BACT emissions limit.**
- ▶ **EPA should reconsider its position on whether CO₂/GHG emissions from stationary sources are “subject to regulation under the CAA.”**

Energy Efficiency Text

Efficiency upgrades at existing coal-based units offer potential to reduce near-term CO₂ emissions. Specific recommendations were not formulated due to a lack of consensus regarding NSR implications.

A broad evaluation of the overall impacts of increasing production efficiency across the coal generation fleet would advance the dialogue on the merits of this strategy and mechanisms for implementation.

It is important to implement this approach sooner rather than later because each ton of CO₂ reduced today has greater impact on global warming potential for the same quantity of CO₂ reduced later.

Energy Efficiency Recommendations

1. Work Group recommends EPA conduct an analysis of overall criteria and CO2 impacts of increasing production efficiency across the coal fleet
2. EPA should train permitting authorities on how to approach proposed energy efficiency projects under NSR